

## **CLAIMS**

**What is claimed is:**

3                   an effective portion of RLIP76.

1                 10.    The proteoliposome of claim 9, wherein the proteoliposome is used to  
2    reduce the concentration of toxic compounds on one side of the liposomal membrane.

1                 11.    The proteoeliposomal composition of claim 9 further comprising at least  
2    one of the group consisting of 4-hydroxynonenal, leukotriene, polychlorinated biphenyls,  
3    glutathione, and combinations thereof.

1                 12.    The proteoeliposomal composition of claim 9, wherein the effective  
2    portion of RLIP76 is dependent on ATP for optimal activity.

1                 13.    The proteoeliposomal composition of claim 10, wherein the toxic  
2    compound is selected from the group consisting of crude oil, crude oil fraction, an organic  
3    or inorganic chemical compound, a chemical solvent, metabolite, metabolic by-product, a  
4    chemical warfare agent, drug, drug by-product, chemical by-product, radiation, stress by-  
5    product, and combinations thereof.

1                 14.    The proteoeliposomal composition of claim 9, wherein the liposome is at  
2    least selected from the group consisting of lectin, glycolipid, phospholipid, and  
3    combinations thereof.

1                 15.    The proteoeliposomal composition of claim 9, wherein the  
2    proteoeliposomal composition is for the treatment of toxic compound exposure.

1                 16.    The proteoeliposomal composition of claim 15, wherein treatment  
2    prevents accumulation of one or more toxic compounds outside the proteoliposome..

1                 17.    The proteoeliposomal composition of claim 15, wherein treatment with the  
2    proteoeliposomal composition reduces the concentration of toxic compounds outside the  
3    proteoliposome..

1                 18.    The proteoeliposomal composition of claim 15, wherein treatment protects  
2    against further contamination by the one or more toxic compounds.

1                 19.    The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2    composition is capable of being transfected into a bacterial or mammalian cell.

1                 20.    The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2    composition is capable of having antibodies generated against it.

1           21. The proteoliposomal composition of claim 9, wherein the effective portion  
2 of RLIP76 is capable of having antibodies generated against it.

1           22. The proteoliposomal composition of claim 21, wherein antibodies raised  
2 against the effective portion of RLIP76 and added to the proteoliposomal composition  
3 prevent the activity of the effective portion of RLIP76.

1           23. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition is a nonselective transporter of neutral and charged compounds.

1           24. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition protects against drug and multidrug resistance.

1           25. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition modulates cellular signaling and affects cell proliferation.

1           26. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition modulates cellular signaling and affects cell death.

1           27. The proteoliposomal composition of claim 9, wherein the effective portion  
2 of RLIP76 is an effective portion of recombinant RLIP76.

1           28. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition is administered to an organism in need thereof and protects the organism  
3 from stressors selected at least from the group consisting of heat, oxidant chemicals,  
4 chemotherapeutic agents, UV irradiation and X-irradiation, cell damage, waste by-  
5 products, and combinations thereof.

1           29. The proteoliposomal composition of claim 28, wherein administration is  
2 selected at least from the group consisting of injection, dermal delivery, infusion,  
3 ingestion, and combinations thereof.

1           30. A method of reducing the effects of ionizing radiation comprising the step  
2 of:

3           adding a proteoliposome to a material with ionizing radiation, wherein the  
4 proteoliposome is a liposome and an effective portion of RLIP76.

1           31. The method of claim 30, wherein the proteoliposome is added prior to the  
2 ionizing radiation.

1           32. The method of claim 30, wherein ionizing radiation is at least selected  
2 from the group consisting of x-ray radiation, gamma radiation, ultraviolet radiation,  
3 thermal radiation, nuclear radiation, and combinations thereof.

1           33. The method of claim 30, wherein the liposome is at least selected from the  
2 group consisting of lectin, glycolipid, phospholipid, and combinations thereof.

1           34. The method of claim 30, wherein the material is at least selected from the  
2 group consisting of organism, mammalian cell, transfected mammalian cell, soil, water,  
3 spill, process waste stream, manufacturing waste, chemical waste, laboratory waste,  
4 hospital waste, and combinations thereof.

1           35. The method of claim 30, wherein the effective portion of RLIP76 is  
2 dependent on ATP for optimal activity.

1           36. A kit prepared for using the proteoliposomal composition of claim 21  
2 comprising:

3                 an effective dose of a proteoliposome, wherein the proteoliposome is a  
4 liposome and an effective portion of RLIP76; and

5                 an instructional pamphlet.

1           37. The kit of claim 36, wherein the liposome is at least selected from the  
2 group consisting of lectin, glycolipid, phospholipid, and combinations thereof.

1           38. The kit of claim 36, wherein the effective portion of RLIP76 is dependent  
2 on ATP for optimal activity.

1           39. The kit of claim 36, wherein the kit is used to reduce the concentration of  
2 toxic compounds and their by-products and to enhance resistance to toxic compounds.

1           40. The kit of claim 36 further comprising an antibody raised against the  
2 effective portion of RLIP76.

1           41. The kit of claim 36 further comprising a means for administering the  
2 proteoliposomal composition.

1           42. The kit of claim 36, wherein the means for administering the  
2 proteoliposomal composition is selected at least from the group consisting of injection  
3 device, dermal delivery device, infusion device, injection device, and combinations  
4 thereof.

1           43. A method of enhancing the resistance of one or more cells to one or more  
2 toxic compounds comprising the step of:

3                 providing an effective dose of a proteoliposome to one or more cells,  
4 wherein the proteoliposome is a liposome and an effective portion of RLIP76.

1           44. The method of claim 43, wherein the liposome is at least selected from the  
2 group consisting of lectin, glycolipid, phospholipid, and combinations thereof.

1           45. The method of claim 43, wherein the effective portion of RLIP76 is  
2 dependent on ATP for optimal activity.

1           46. The method of claim 43, wherein the proteoliposome protects one or more  
2 cells from stressors selected at least from the group consisting of heat, oxidant chemicals,  
3 chemotherapeutic agents, ionizing radiation, nuclear radiation, thermal radiation, cell  
4 damage, waste by-products, and combinations thereof.

1           47. A method of preparing a proteoliposome comprising the step of:

2                 contacting a liposome with an effective portion of RLIP76 to create a  
3 proteoliposome, wherein the liposome is at least selected from the group consisting of  
4 lectin, glycolipid, phospholipid, and combinations thereof, and wherein the effective  
5 portion of RLIP76 is dependent on ATP for optimal activity.

1           48. A proteoliposomal composition comprising:

2                 a liposome, wherein the liposome is at least selected from the group  
3 consisting of lectin, glycolipid, phospholipid, and combinations thereof; and  
4                 an effective portion of RLIP76, wherein the effective portion of RLIP76 is  
5 dependent on ATP for optimal activity.

1           49. The proteoliposomal composition of claim 48, wherein the  
2 proteoliposomal composition is deliverable to any mammalian organ after administration.

1           50. The proteoliposomal composition of claim 9 further comprising a gene.

1           51. The proteoliposomal composition of claim 9, wherein the gene is delivered  
2 to a mammalian organ after administration of the proteoliposomal composition.

1           52. The proteoliposomal composition of claim 9, wherein the proteoliposomal  
2 composition is a vehicle for the delivery to the brain of at least of the group consisting of  
3 a drug, protein, gene, antisense therapy, and combinations thereof.